Evaluation of Tracking Algorithms Using Heterogeneous Technologies

EU funded project:

Newcom++

Network of Excellence in Wireless COMmunications

Workpackage WPR.B: "Localization and Positioning"

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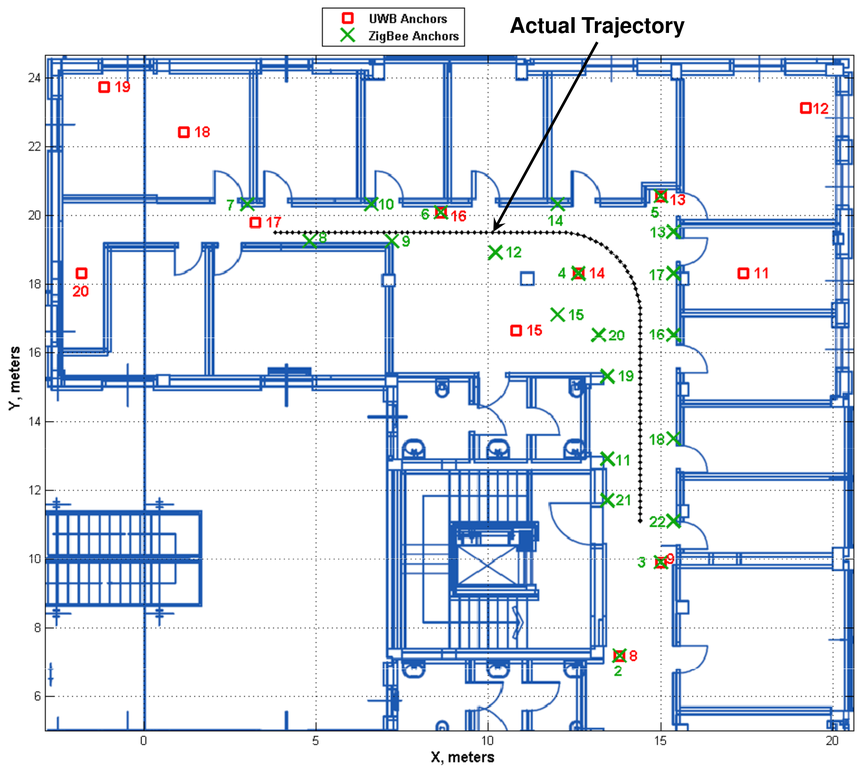
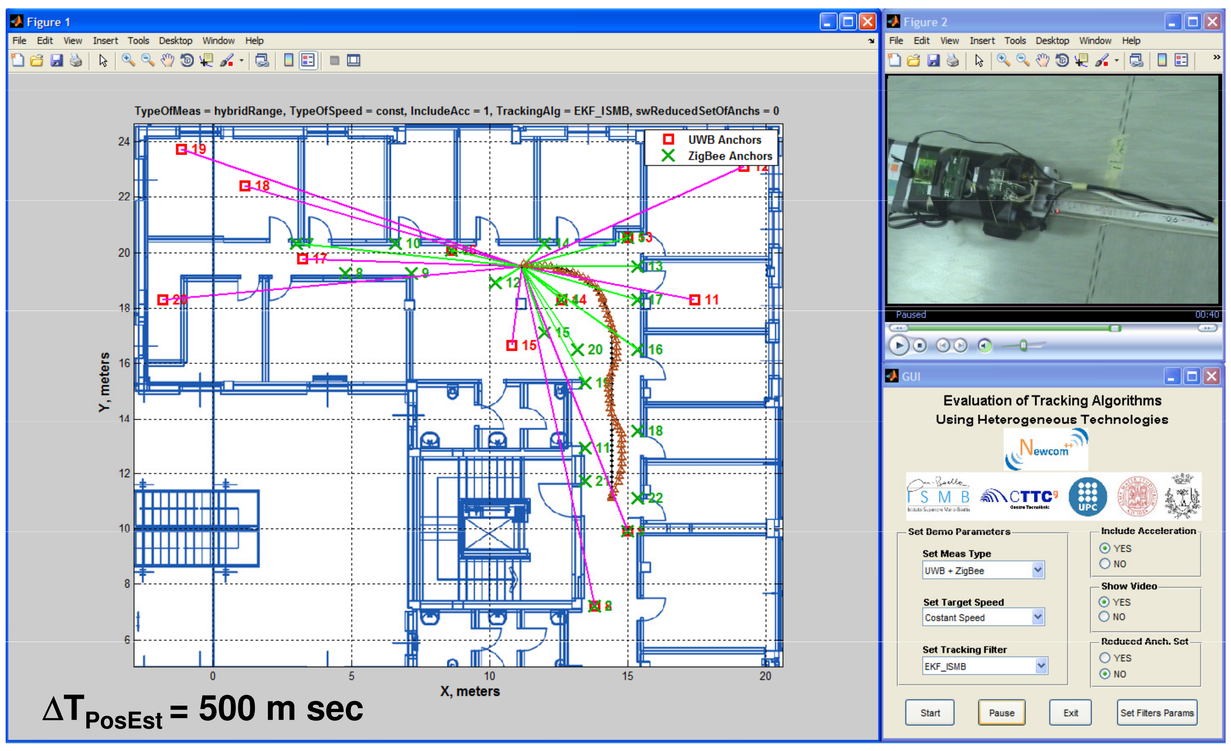
Environment, Mobile Target, Matlab GUI

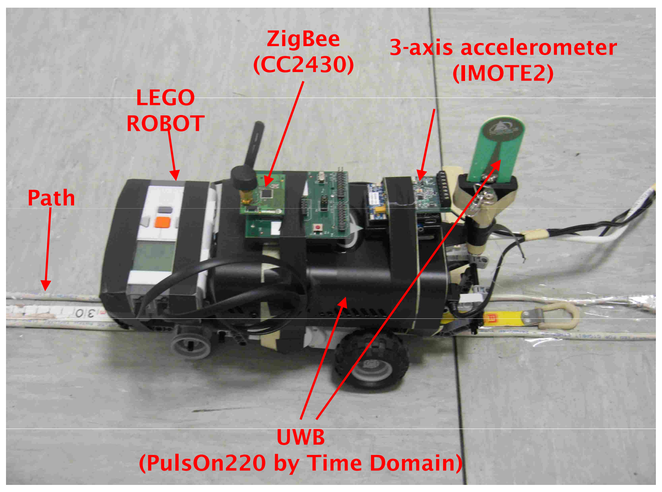
Indoor Office Environment



Matlab GUI



Mobile Target



Max Speed: 0.44 m/sec

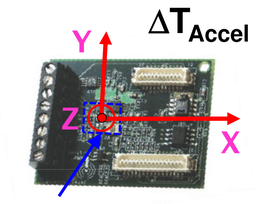
CC2420 ZigBee Module

ΔT_{RSS} = 50 m sec

Accel. Module

IMOTE2 Sensor Board ITS400

ΔT_{Accel} = 2 m sec



3-axis accelerometer LIS3L02DQ

PulsOn220 UWB Module

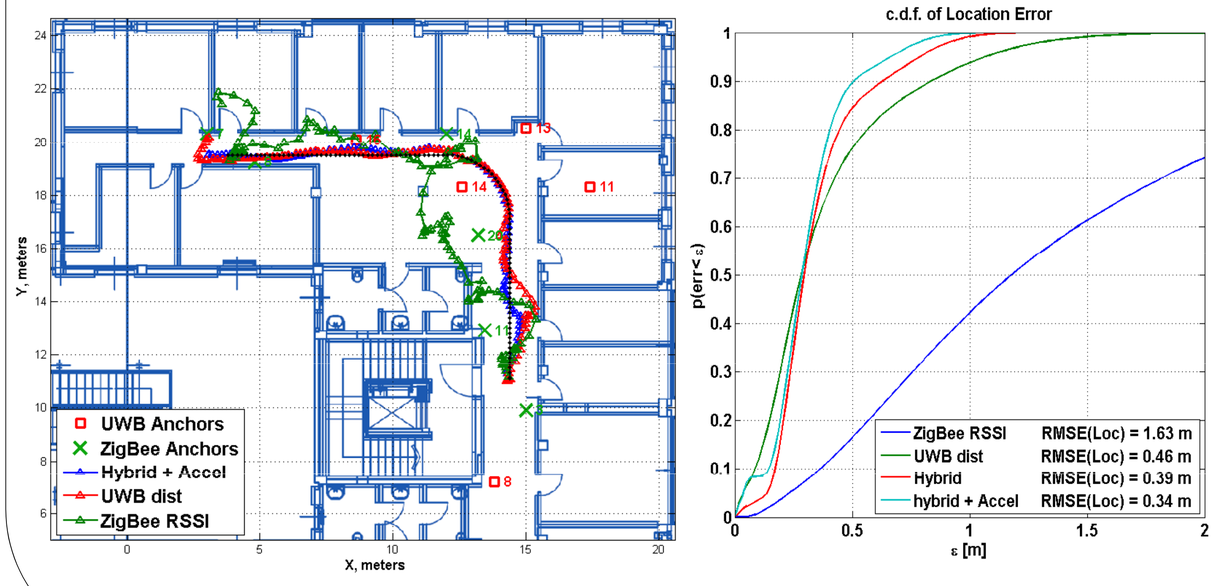
ΔT_{UWB} = 500 m sec

Algorithms Tested Using Hybrid Data: ZigBee-RSS, UWB-dist, Acc.

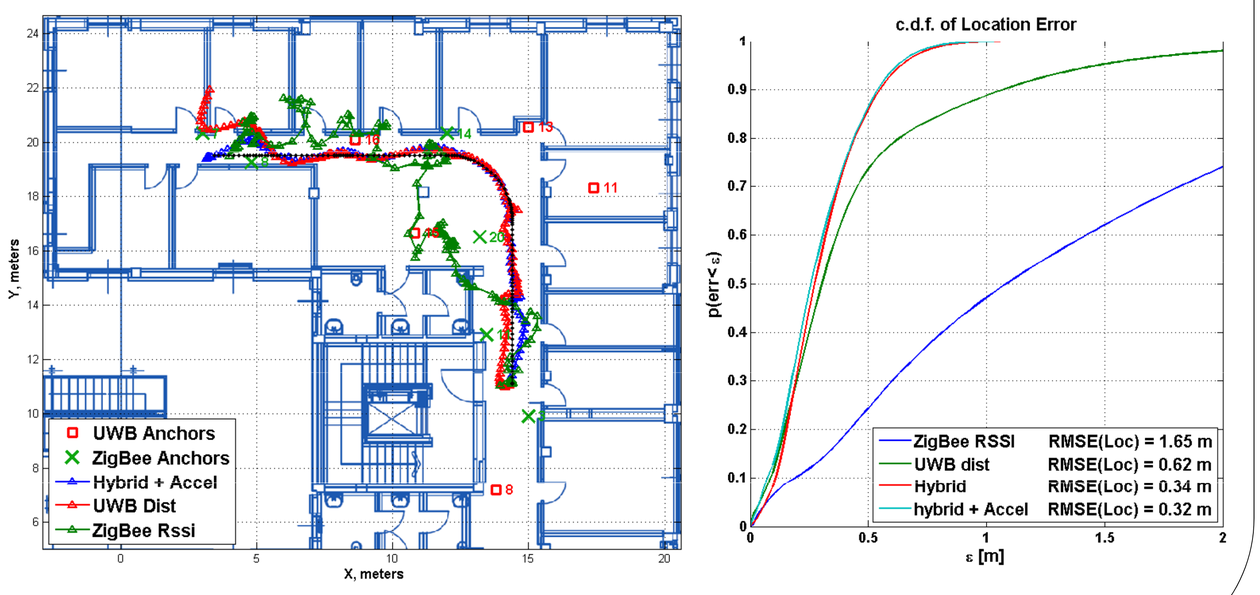
- **EKF** (Extended Kalman Filter)
- **EKF-BT** (EKF Bias Tracking)
- **PF** (Particle Filter)
- **CRPF** (Cost Reference PF)
- **CKF** (Cubature Kalman Filter)

Performance

Constant Speed, Reduced Set of Anchors



Variable Speed, Reduced Set of Anchors



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